Figure 1A

Figure 1B

$$\begin{array}{c} & & & \\ & &$$

Figure 1C

Figure 1D

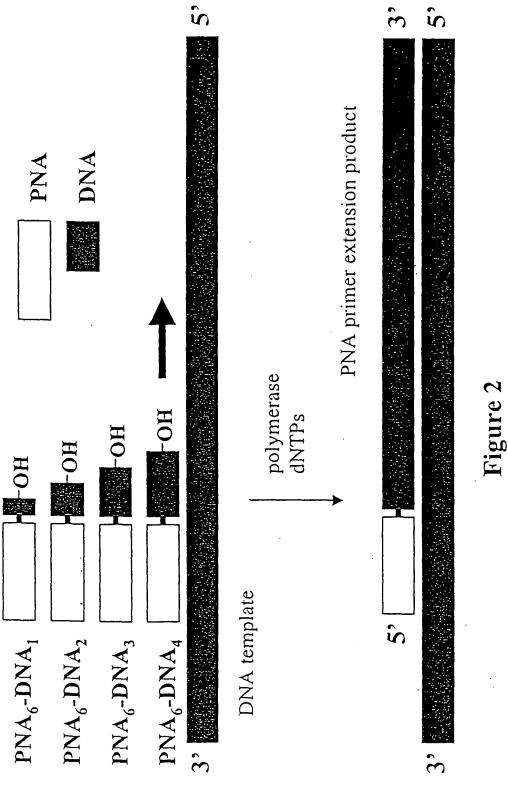


Figure 3A

Figure 3B

Figure 4

$$Y-NH$$
 $X-R-O$ 
 $P$ 
 $N$ 

 $X = amide, urea, CH_2, O, or R$ 

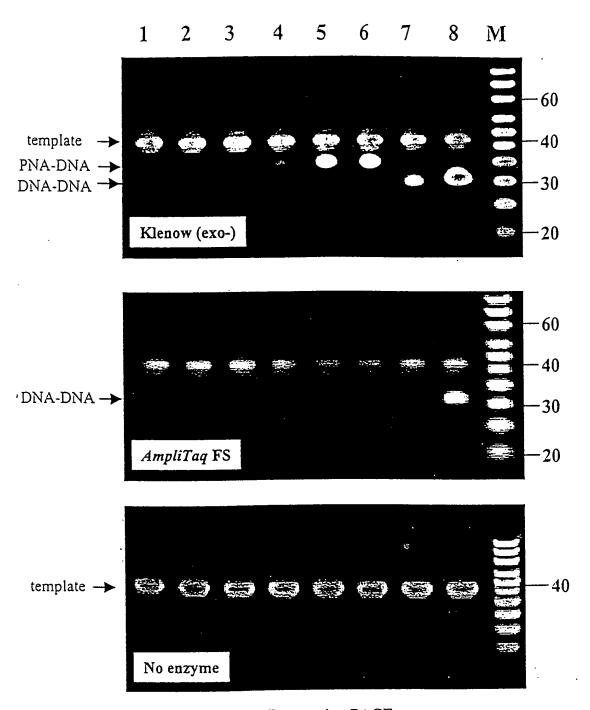
$$R = (CH_2)_n \text{ or } (CH_2CH_2O)_n$$
  
 $n = 1 - 10$ 

Y = trifluoroacetyl, Fmoc, trityl, MMT, DMT

## Figure 5

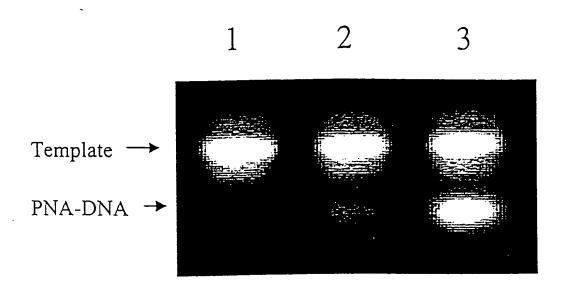
Figure 6A

Figure 6B



15% Denaturing PAGE

Figure 7



15% Denaturing PAGE at 70 °C

Figure 8

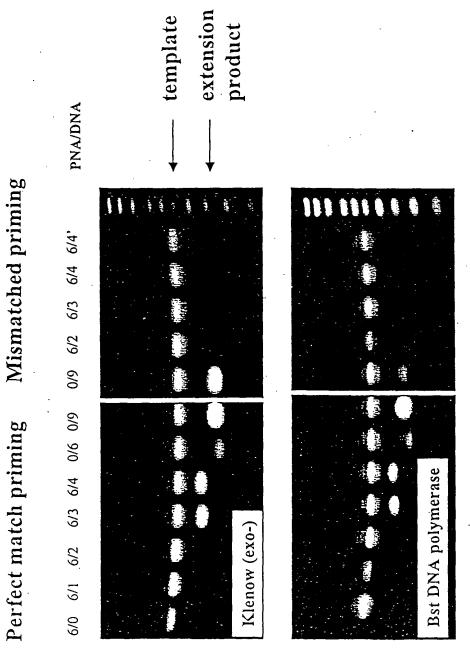


Figure 9

tagttctag tagttc TAGTTC PNA<sub>0</sub>-DNA<sub>6</sub> PNA<sub>6</sub> - DNA<sub>0</sub> PNA<sub>0</sub>-DNA<sub>9</sub>

(upper case - PNA, lower case - DNA) Perfect match priming

TAGTTC-t

 $PNA_{6} - DNA_{1}$ 

TAGTTC-tag TAGTTC-ta  $\dot{P}NA_6 - DNA_2$  $PNA_6 - DNA_3$  PNA<sub>6</sub>-DNA<sub>4</sub> TAGTTC-taga 3' — Extension | 111111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111 | 1111

2

Perfect match DNA template, 38nt

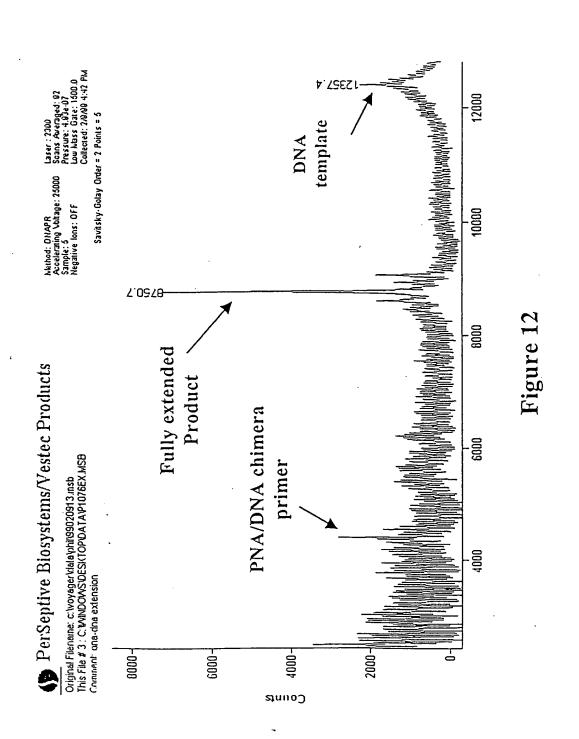
Figure 10

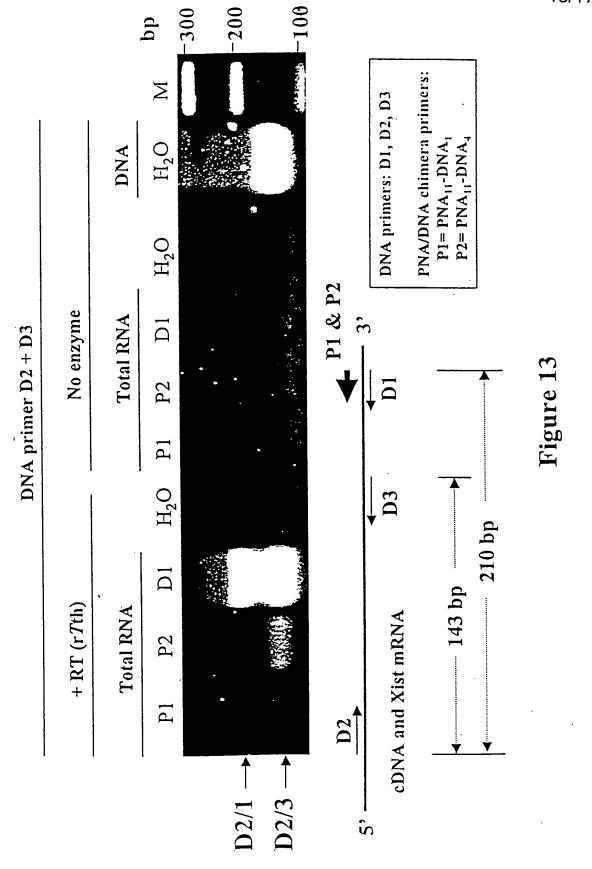
## Mismatched priming

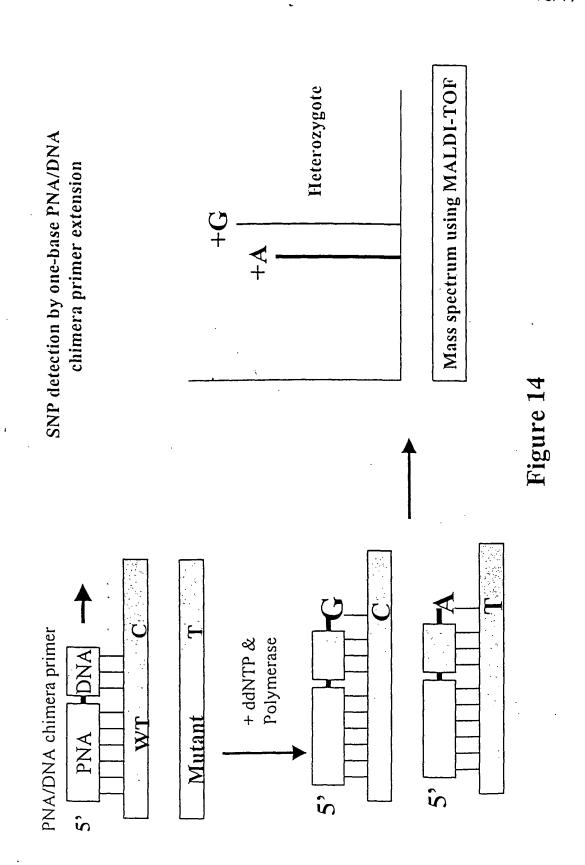
DNA bases PNA bases	0	<u>7</u>	9	6 Extension	gtacgatacacaactcgc 5'	NO. 12)
(upper case - PNA, lower case - DNA)	PNA <sub>0</sub> -DNA <sub>9</sub> tagttc <sub>p</sub> tag	$\begin{bmatrix} PNA_6 - DNA_2 \end{bmatrix}$ TAGTTC-ta	PNA <sub>6</sub> -DNA <sub>3</sub> TAGTTC-tag	5' PNA <sub>6</sub> - DNA <sub>4</sub> TAGTTC - taga		mismatch DNA template, 38nt (SEQ. ID NO. 12)

3, aaggtccgaatcaag 5

Figure 11







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p <i>Taq</i>	b c a b c b			<ul><li>a. 50 μM each dNTP (dATP:dGTP:dCTP:dTTP)</li><li>b. dTTP replaced by 1 μM TAMRA-dUTP in (a)</li><li>c. ddGTP:dGTP:dATP:dTTP:dCTP 500:5:50:50:50 μM</li></ul>
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Figure 15